

In the Claims

The following is an amendment to and a complete listing of claims which replaces all prior versions, and listings, of claims in this application.

1.(currently amended) A multi-axis robot comprising an arm for moving a tool in space and actuated by electric motors, and a control system including:

At least one digital interface ~~having~~ card connected to at least one position sensor associated with the arm and being ~~adapted~~ used for serializing an output signal therefrom, the interface card being integrated into the arm;

~~At least one power module for supplying power to the~~
~~motors;~~

~~A control unit associated with~~ controller controlling the arm and including at least one power module for supplying power to the motors and at least one calculation and processing unit used to compute a path of the arm [(A)] and generate control signals for the at least one power module, and the at least one calculation and processing unit;

Link means between the arm, the at least one power module~~[[,]]~~ and the control calculation and processing unit ~~and the at least one digital interface,~~ the link means permitting at least the ~~control of~~ supply of electricity to the motors from the at least one power module ~~and the transmission of feedback signals from the arm;~~ and

[[A]] Wherein the link means includes a single functional bus (B) formed by at least one structural bus, the single functional bus linking a control unit of the calculation and processing unit to the at least one power

module and to the at least one digital interface card and the single functional bus enabling the at least one power module to be controlled by the at least one calculation and processing unit and feedback signals to be transmitted from the arm to the control unit and/or the at least one power module, at a frequency of the single functional bus, ~~and the single functional bus being formed by at least one structural bus and the functional bus linking the control unit to the at least one power module and the at least one digital interface.~~

2.(currently amended) The robot as claimed in claim 1 wherein the single functional bus (B) includes at least two structural buses (B_1 , B_2):

A first structural bus linking the control unit to the at least one power module; and

A second structural bus linking the control unit to the at least one digital interface card.

3.(currently amended) The robot as claimed in claim 2, wherein the first structural bus is a metallic bus (B_1)~~[[,]]~~ made of copper.

4.(currently amended) The robot as claimed in claim ~~[[1]]~~ 2, wherein the second structural bus is an optical fiber bus (B_2).

5.(currently amended) The robot as claimed in claim 1, wherein the control unit ~~[[30]]~~ is linked to the at least one calculation and processing unit by a PCI type bus.

6.(previously presented) The robot as claimed in claim 1, wherein the control unit is incorporated in the at least one calculation and processing unit.

7.(previously presented) The robot as claimed in claim 1, including an identification and calibration card incorporated in the functional bus (B).

8.(previously presented) The robot as claimed in claim 1 wherein each structural bus is designed to be extended by additional connection means)to interact with at least one external unit processing information.

9.(currently amended) The robot as claimed in claim 1, wherein the link means also includes a power conductor [[(52)]] linking the at least one module to the arm (A), independently of the functional bus (B).

10.(currently amended) The robot as claimed in claim 2, wherein the first structural bus (B₁)is connected to a plurality of power modules, each dedicated to a ~~separator~~ separate motor of the robot.

11.(currently amended) The robot as claimed in claim 1, wherein the at least one digital interface card ~~is an interface card for computing~~ computes the speed and/or the acceleration of the movement measured by an associated sensor, ~~serializing~~ serializes its output signal and, where appropriate, ~~digitizing~~ digitizes the output signals of the associated sensor when it is analog.

12.(currently amended) The robot as claimed in claim 1, the at least one digital interface card is incorporated in an associated sensor and is for computing a speed and an acceleration of the movement measured by the associated sensor, serializing its output signal and, where appropriate, digitizing the output signal of the associated sensor when it is analog.

13. (cancelled)

14. (new) The robot as claimed in claim 1 wherein the at least one power supply module, the calculation and processing unit, the control unit and a first structural bus are installed within a housing of the controller.